

CLAIMS

What is claimed is:

- 1 1. A system for providing simultaneous context based audio interaction among a
2 plurality of participants in a network based gaming environment, the system
3 comprising:
4 a game server in communication with a plurality of game participants, the game
5 server capable of hosting the network based gaming environment and maintaining
6 a game state profile for each game participant; and
7 an audio conference server in communication with the game server, the audio
8 conference server capable of hosting a voice over internet protocol based audio
9 conference between two or more game participants;
10 wherein the audio conference server establishes the audio conference in response
11 to instructions from the game server.
- 1 2. The system of claim 1, wherein the participants in the audio conference are
2 determined by the game server based upon the game state profiles of the game
3 participants.
- 1 3. The system of claim 1, wherein the participants in the audio conference comprise
2 a shared context.
- 1 4. The system of claim 1, wherein the game server comprises a session initiation
2 protocol stack and the audio conference is a session initiation protocol based
3 voice over internet protocol communication.
- 1 5. The system of claim 1, wherein each participant comprises an audio
2 communication device and the system comprises at least one audio mixer in

3 communication with the audio server and each participant audio communication
4 device to provide the audio mixing for the audio conference.

1 6. The system of claim 5, wherein the audio communication device comprises an
2 internet protocol phone, a software based phone or conventional telephone
3 equipment.

1 7. The system of claim 5, wherein the audio mixer is centrally located at the audio
2 server.

1 8. The system of claim 5, further comprising a plurality of distributed audio mixers,
2 each audio mixing in communication with one of the audio conference
3 participants.

1 9. The system of claim 1, wherein the game server is capable of managing a
2 plurality of simultaneous and independent audio conferences, each audio
3 communication comprising two or more game participants.

1 10. The system of claim 9, wherein each game participant can simultaneously
2 participate in two or more independent audio conferences.

1 11. The system of claim 1, further comprising a plurality of distributed audio servers
2 in communication with the game server, each audio server capable of hosting an
3 audio conference between two or more game participants.

1 12. The system of claim 1, further comprising a plurality of distributed game servers.

- 1 13. A method for providing simultaneous context based audio interaction among a
2 plurality of participants in a network based gaming environment, the method
3 comprising:
4 establishing a network based game environment containing a plurality of game
5 participants;
6 maintaining a game state profile for each one of the game participants; and
7 establishing one or more voice over internet protocol based audio conferences
8 among the game participants based upon the game state profiles.
- 1 14. The method of claim 13, wherein the step of maintaining a game state profile
2 comprises maintaining a game state profile for each participant in a single
3 centralized game server.
- 1 15. The method of claim 13, wherein the step of maintaining a game state profile
2 comprises maintaining a game state profile for each participant in each one of a
3 plurality of distributed game servers associated with each participant.
- 1 16. The method of claim 13, wherein the step of establishing an audio conference
2 comprises establishing a session initiation protocol based voice over internet
3 protocol based audio conference.
- 1 17. The method of claim 13, wherein the step of establishing an audio conference
2 comprises determining at least one group of game participants possessing a shared
3 context that permits the transmission or receipt of audio communications among
4 game participants in the group.
- 1 18. The method of claim 17, further comprising modifying the group of participants
2 based upon changes in the game state profiles of game participants in the group.
3

- 1 19. The method of claim 18, wherein the step of modifying the group of participants
2 comprises removing participants or adding participants.
- 1 20. The method of claim 17, further comprising determining a plurality of groups of
2 participants wherein each group of game participants possessing a shared context
3 that permits the transmission or receipt of audio communications among game
4 participants in that group.
- 1 21. The method of claim 20, further comprising dynamically switching at least one
2 participant between two distinct groups.
- 1 22. The method of claim 13, wherein the step of establishing an audio conference
2 comprises delivering an audio signal to each audio conference participant that
3 comprises the sum of all received audio signals from all other audio conference
4 participants.
- 1 23. The method of claim 13, wherein the step of establishing an audio conference
2 comprises determining an audio feature vector for each pair of audio conference
3 participants based upon the game state profiles associated with the participants;
4 and
5 modifying audio signals transmitted between the pair of audio conference
6 participants in accordance with the audio feature vector.
- 1 24. The method of claim 23, wherein the audio feature vector comprises information
2 about distance, direction, communication medium, transmission frequency or
3 transmission amplitude.

- 1 25. The method of claim 23, further comprising modifying the audio feature vector in
2 response to changes in the game state profiles of the audio conference
3 participants.
- 1 26. A computer readable medium containing a computer executable code that when
2 read by a computer causes the computer to perform a method for providing
3 simultaneous context based audio interaction among a plurality of participants in
4 a network based gaming environment, the method comprising:
5 establishing a network based game environment containing a plurality of game
6 participants;
7 maintaining a game state profile for each one of the game participants; and
8 establishing one or more voice over internet protocol based audio conferences
9 among the game participants based upon the game state profiles.
- 1 27. The computer readable medium of claim 26, wherein the step of maintaining a
2 game state profile comprises maintaining a game state profile for each participant
3 in a single centralized game server.
- 1 28. The computer readable medium of claim 26, wherein the step of maintaining a
2 game state profile comprises maintaining a game state profile for each participant
3 in each one of a plurality of distributed game servers associated with each
4 participant.
- 1 29. The computer readable medium of claim 26, wherein the step of establishing an
2 audio conference comprises establishing a session initiation protocol based voice
3 over internet protocol based audio conference.
- 1 30. The computer readable medium of claim 26, wherein the step of establishing an
2 audio conference comprises determining at least one group of game participants

3 possessing a shared context that permits the transmission or receipt of audio
4 communications among game participants in the group.

1 31. The computer readable medium of claim 30, further comprising modifying the
2 group of participants based upon changes in the game state profiles of game
3 participants in the group.

1 32. The computer readable medium of claim 31, wherein the step of modifying the
2 group of participants comprises removing participants or adding participants.

1 33. The computer readable medium of claim 30, further comprising determining a
2 plurality of groups of participants wherein each group of game participants
3 possessing a shared context that permits the transmission or receipt of audio
4 communications among game participants in that group.

1 34. The computer readable medium of claim 33, further comprising dynamically
2 switching at least one participant between two distinct groups.

1 35. The computer readable medium of claim 26, wherein the step of establishing an
2 audio conference comprises delivering an audio signal to each audio conference
3 participant that comprises the sum of all received audio signals from all other
4 audio conference participants.

1 36. The computer readable medium of claim 26, wherein the step of establishing an
2 audio conference comprises determining an audio feature vector for each pair of
3 audio conference participants based upon the game state profiles associated with
4 the participants; and
5 modifying audio signals transmitted between the pair of audio conference
6 participants in accordance with the audio feature vector.

- 1 37. The computer readable medium of claim 36, wherein the audio feature vector
2 comprises information about distance, direction, communication medium,
3 transmission frequency or transmission amplitude.
- 1 38. The computer readable medium of claim 36, further comprising modifying the
2 audio feature vector in response to changes in the game state profiles of the audio
3 conference participants.